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ABSTRACT

This summary presents findings from the Monitoring the Future project, which involves repeated cross-sectional surveys as well as panel studies of youth throughout the United States. The data showed both changes and continuities in drug use and other deviant behaviors. Discussion of the findings focuses on five broad themes: (1) consistencies across time in correlates of deviant behavior; (2) different secular trends in deviant behavior; (3) stability in individual patterns of drug use; (4) changes linked to marital status and living arrangements; and (5) additional age-linked changes in deviant behaviors. The study discusses the implications of these findings in the concluding section, which suggests that any comprehensive effort to explain the totality of deviance in adolescence and young adulthood will have to account for both general factors and those which are specific to particular deviant behaviors. References are included, along with a set of statistical charts that show relevant longitudinal findings from the study. (TE)

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CHANGES IN DEVIANT BEHAVIOR DURING LATE ADOLESCENCE AND EARLY ADULTHOOD

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ABSTRACT

I present findings from the Monitoring the Future project, which involves repeated cross-sections as well as panel studies of youth throughout the United States. The data show both changes and continuities in drug use and other deviant behaviors:

1. There are great consistencies across time in those characteristics which distinguish between individuals who are and are not likely to be involved in a variety of deviant behaviors.

2. There also have been secular trends in the "popularity" of some deviant behaviors--particularly use of different drugs. Perceptions of risk and of peer disapproval seem to influence these trends.

3. There are relatively high levels of stability across time in individual patterns of deviancy--especially drug use.

4. There are also consistent shifts in such behaviors linked to changes in marital status and living arrangements during young adulthood:

    a. Becoming married is associated with declining drug use.
    b. Becoming engaged shows a similar (but weaker) pattern.
    c. Leaving the parental home (without marrying) is associated with a rise in drug use.

5. There are additional age-linked changes in deviant behaviors which are largely independent of the role changes noted above.

I suggest that the several patterns of change in deviant behaviors reflect a variety of social factors, including shifts in daily environments and patterns of interaction, as well as broader societal forces.

I am grateful to Dawn Bare and Ginger Maggio for their assistance in the preparation of this paper.

INTRODUCTION

I wish to address a number of the themes of this symposium, reporting findings from a project called Monitoring the Future. Some of these findings are based on analyses which have been published in recent years; others are based on analyses which have been completed but not yet published; still others are based on ongoing analyses (and thus are more tentative). In the time available, I can provide only a brief overview of key findings--findings which illustrate several general conclusions about drug use and delinquent behaviors.

I want to stress that all of the work reported here has been done collaboratively. Lloyd Johnston and I designed the Monitoring the Future project in the early 1970s, and we have been co-directors since data collections began in 1975. Patrick O'Malley joined the project soon thereafter, and the three of us have collaborated on data collection and analysis for well over a decade. Several recent analyses have also involved our colleagues Willard Rodgers and Wayne Osgood. Thus, all of the data presented here, and most of the ideas as well, have grown out of our shared efforts. (Indeed, I have sometimes quoted or paraphrased extensively from the various reports cited herein.)

The Monitoring the Future project has been described in detail in a number of our publications (e.g., Bachman & Johnston, 1978; Johnston, O'Malley, & Bachman, 1986; Bachman, Johnston, & O'Malley, 1987; also other publications cited herein). For present purposes I need note only a few characteristics of the study design. Each spring, beginning in 1975, we have surveyed a nationally representative sample of about 17,000 seniors in about 130 high schools. We use machine-readable questionnaires, administered in classrooms by field representatives of the University of Michigan's Survey Research Center. Care is taken to maintain consistent conditions for questionnaire administration, and to guarantee privacy and confidentiality for each respondent. These annual surveys of high school seniors provide a series of cross-sectional views, representing most young men and women age 17 or 18 (but omitting the 15-20 percent who drop out of high school before the end of twelfth grade).

As we shall see, comparisons across these annual surveys of seniors can reflect cohort differences, i.e., distinctions between graduating classes which will last for some time. But comparisons across senior classes can also reflect secular trends, i.e., historical shifts which cut across cohorts. That points up a fundamental problem: taken by themselves, our repeated surveys of high school seniors would not permit us to distinguish between cohort differences and secular trends. We are able to deal with this problem because the Monitoring the Future design also includes a follow-up component.

For follow-up purposes, subsamples are selected from each of the annual surveys of seniors, and the individuals thus selected are asked to complete mail questionnaires similar to those which they completed in high school. Follow-up participants are surveyed on a biannual cycle beginning either one or two years after graduation; the questionnaires are sent by certified mail, along with a check for five dollars from the University of Michigan. This approach, coupled with reminders by mail and telephone when necessary, generally yields response rates of 80% or better during early follow-ups; and even ten years past high school response rates remain at about 75%. The target follow-up sample size is about 1,200 cases each year from each cohort, and the obtained samples generally range from 900 to 1,000.

In effect, our design launches a new panel study each year. The resulting dataset (through 1987) is summarized in Figure 1. This cohort-sequential design permits us to draw some distinctions among age, period, and cohort effects, as I will try to illustrate. Furthermore, because the same respondents are followed across time, we are able to explore change and stability in deviant behaviors, and also the ways in which such behaviors are linked to major roles and experiences during young adulthood.

I have tried to organize this summary of our findings around five broad themes, recognizing that there is a good deal of overlap among them.

CONSISTENCIES IN CORRELATES OF DEVIANT BEHAVIORS

The first broad theme is that there are great consistencies across time in those characteristics which distinguish between individuals who are and are not likely to be involved in a variety of deviant behaviors. Some years ago, after examining a number of background and lifestyle factors correlated with the use of cigarettes, alcohol, marijuana, and other illicit drugs, we reached the following tentative conclusion:

> We believe that some individuals seem especially disposed toward deviant or "problem" behavior (Jessor, R. & Jessor, S.L., 1977; Johnston, O'Malley, & Eveland, 1978; Smith & Fogg, 1978; Jessor, R., Chase, & Donovan, 1980). However, the particular forms of behavior chosen vary over different historical periods (as well as from one school or region to another). In the 1960s and 1970s illicit drug use emerged as an increasingly "popular" form of deviance; so instead of simply smoking cigarettes and using alcohol, many of today's teenagers also use marijuana, and some use other illicit drugs. The emerging pattern of relationships with the use of cocaine may illustrate our point particularly well. In 1975, cocaine use was low and was not very strongly correlated with the background and lifestyle factors treated in this report. By 1979, usage levels were higher and the correlations were much stronger; however, the patterns of correlation were the familiar ones consistently in evidence for alcohol, marijuana, and other illicit drugs taken as a group. In other words, the kinds of young people most "at risk" tend to remain much the same, while the kinds and amounts of substances used shift somewhat from year to year. (Bachman, Johnston, & O'Malley, 1981, p.67)

The above observations were based on data from high school seniors in the classes of 1975-79, a period when marijuana use in the United States continued to rise in popularity. But we think this same interpretation is fully applicable to the new data from the first half of the 1980s, a period when marijuana use has been declining in popularity (as I will illustrate a bit later). The analysis quoted above has now been extended to include U.S. high school seniors from the classes of 1975 through 1986. Our primary purpose was to explore whether any of the recent shifts in drug use could be attributed to (a) overall trends upward or downward in any of the correlates of drug use, and/or (b) changes in the patterns of correlation.

The findings from this analysis can be summarized quickly. We found again that those dimensions of background and lifestyle which correlate with one kind of drug use (e.g., heavy drinking) also correlate with most other kinds of drug use (e.g., use of marijuana, use of other illicit drugs). We also found that these patterns of correlation had changed rather little during the past decade. It continues to be true that drug use is above average among those less successful in adapting to the educational environment (as indicated by truancy and low grades), those who spend many evenings out for recreation, those with heavy time commitments to a part-time job, and those with relatively high incomes. It also continues to be true that drug use is below average among those with strong religious commitments and those with conservative political views; however, the links with religious and political views grew somewhat weaker during the past decade. (For example, alcohol use correlated with religious commitment -.33 for the class of 1975, but only -.23 for the class of 1986; political liberalism or radicalism also showed declining correlations with alcohol use -- from .21 to .11.)

Finally, we found little in the way of overall trends upward or downward in those factors which correlate with drug use. There was a slight increase in seniors' commitment to education

(slightly reduced truancy, and larger proportions planning to complete college); there was a slight increase during the late seventies in the proportions claiming "conservative" political beliefs; but there was also a slight decline in religious commitment. None of these shifts was nearly large enough to account for recent trends in drug use, and one (the decline in religious commitment) was not even in the right direction (see Bachman, O'Malley, & Johnston, 1986).

Another analysis recently completed, with Wayne Osgood as the senior author, provides additional data bearing on the common causes of deviant behavior. In this effort a series of LISREL analyses was carried out in order to assess the relative importance of shared causes, specific causes, and influences of one form of deviance on another. The analysis employed three waves of panel data ranging from senior year to four years beyond high school, and examined self-reported measures of heavy alcohol use, marijuana use, use of other illicit drugs, problem driving, and other illegal behavior (including interpersonal aggression, theft, and vandalism). We summarized our results as follows:

> Our findings offer strong support for the notion of a generalized tendency toward deviant behaviors such as illicit drug use, theft, assault, and alcohol use. A single latent variable representing general deviance was sufficient to account for virtually all of the contemporaneous relationships between the five behaviors studied. This implies that the correlations between different types of deviance are due to a single set of shared causes. The tendency toward deviance was truly general in that it accounted for 27% or more of the reliable variance in all of the behaviors. Furthermore, the general tendency was quite stable over time, so that general deviance at one time was capable of explaining from 17% to 33% of the reliable variance in each of the specific behaviors one to two years later.... The theoretical importance of our findings is that a substantial portion of the variance in all of these behaviors can be explained in terms of a general willingness to engage in conventionally proscribed behavior. In other words, adequate explanations of these different behaviors should overlap to a considerable extent. (Osgood, Johnston, O'Malley, & Bachman, in press)

But does that mean that the various deviant behaviors are all simply manifestations of the same general tendency toward unconventionality or criminality? No, the findings are not that simple. Although a general tendency can account for why different forms of deviance are correlated with each other, and although that tendency shows much stability across time, there remains a good deal of additional stability in each of the deviant behaviors. This suggests that in addition to the general or shared causes, there are equally important and stable specific causes for each of the deviant behaviors.

DIFFERENT SECULAR TRENDS IN DEVIANT BEHAVIORS

I turn now to the second broad theme, which will provide another kind of evidence indicating that there are specific as well as common causes for the various deviant behaviors. The point I want to make in this section of the paper is that different types of deviant behavior--in particular, different types of drug use--have shown different patterns of secular trends or period effects. As I will illustrate, different drugs have risen and fallen in popularity during the past decade, in ways which suggest that drug use is far from unidimensional. The findings also suggest that any "patterns of progression" from one drug to another may shift substantially over a period of just a few years.

As I mentioned earlier, the cohort-sequential design of the Monitoring the Future project provides opportunities for distinguishing among age, period, and cohort effects. Let us briefly examine examples of each of these effects; then we will focus more closely on the secular trend in marijuana use.

Figure 2 shows rates of monthly marijuana use prevalence for members of the class of 1976 followed for a decade. This fairly typical display of panel data from a single cohort might suggest that marijuana use rises during late teens and then declines from the early twenties onward; however, it could also suggest that marijuana use was rising during the late 1970s but then declined during the 80s. Figure 3 adds similar panel data for each of the later cohorts, and that resolves the mystery. Actually, the data are so closely massed that we cannot readily separate the different cohorts, but the figure still tells the story quite clearly--no matter which graduating class (or, for that matter, which age), marijuana use was distinctly less prevalent in 1986 than in 1979, and the downward trends are generally quite orderly. Why did that downward secular trend occur? That is a very interesting question, and we will return to it shortly.

But first I want to show you another set of figures. Figure 4 shows how annual cocaine prevalence for the class of 1976 rose dramatically from age 18 to age 24, and then remained fairly steady until age 28. But, you might say, that reflects another secular trend--the growing popularity of cocaine during the late seventies among young adults in general. You would be correct, but only partly so. Figure 5 shows all of the cohorts from 1976 through 1986, and even though this figure is also quite crowded, we can see that there is more than just a secular trend going on. There is no single right answer in interpreting these kinds of charts, but our own view (which is spelled out by O'Malley, Bachman, & Johnston, 1987) is that two effects are represented here: there is a secular trend, with cocaine use rising during the late 1970s and then holding relatively constant during the 1980s; but overlaid upon this is an age-linked effect, with the percentages of cocaine users rising with each year of age until the early to mid-twenties.

One other set of figures, this time showing regular use of cigarettes, suggests still another set of trends. Figure 6 indicates that the proportion of young people smoking a half pack or more per day rises in the first year or two after high school, and then remains relatively unchanged. But is that really an age-linked effect, or does it reflect a secular trend? Figure 7, displaying all of the cohorts, suggests very strongly that there is indeed an age-linked effect, repeated in each cohort. Our interpretation of this effect, incidentally, is that the real cause is departure from high school and entrance into environments which are generally less restrictive of smoking--with the result that a number of those who were relatively light smokers as seniors increase their level to a half pack or more per day. Figure 7 shows something in addition to a set of age-linked shifts; it also shows cohort differences which appear fairly stable over a number of years. In general, each graduating class after 1977 includes fewer smokers than the preceding one (although the relatively small numbers of cases in these analyses make the patterns a bit bumpy). The fact that these cohort differences remain in evidence over a number of years is consistent with some of our other findings on the high stability of smoking behavior. One obvious explanation for this stability is the addictive nature of nicotine.

We have just reviewed several sorts of trends, suggesting that different types of drug use have shown rather different trajectories across recent years, as well as some other differences linked to age and to cohort. A number of other secular trends have been found for still other drugs (see Johnston et al., 1986). It is worth adding that levels of alcohol use have not shown strong secular trends in recent years; and I can also report that our measures of interpersonal aggression, theft, and vandalism have not shown much in the way of secular trends (although the usual sharp decline with age is evident). In sum, there is no single pattern of recent historical trends in deviant behavior.

What causes these different secular trends in the popularity of certain drugs? One very unlikely explanation is that they reflect some general shift in conventionality or criminality, or even some general shift in willingness to use drugs. The fact that the trends (or non-trends) are specific to different drugs suggests that whatever things are causing the trends will also be relatively drug-specific. A number of drug-specific factors are likely candidates, including individuals' awareness of the particular drug, perceptions of its effects (both short-term and long-term), actual

and perceived availability, perceptions of use by friends and others, and perceptions about friends' and relatives' reactions if one used the drug.

In the case of marijuana use, which has declined fairly consistently during the 1980s, several drug-specific perceptions and attitudes have shifted dramatically, beginning in the late 1970s. In particular, the perceptions of risk associated with regular marijuana use, as well as personal disapproval and perceptions that friends would disapprove of regular use, have all changed. Figure 8 displays the relationship between perceived risk and self-reported marijuana use in two ways. The lower solid line shows trends in percentages of seniors who perceived no risk in regular marijuana use, and the lower dashed line shows percentages who reported actually using marijuana on a daily or near daily basis. The upper solid line combines those who perceived no risk and those who perceived only slight risk, and the accompanying dashed line shows percentages who reported using marijuana at least once during the past month. Note the relationships among these trend lines--the attitudes appear to be "leading indicators" of the behaviors. When we did much more detailed analyses, including multivariate regression analyses controlling for individual differences in factors predicting deviancy, we found that only the shifting attitudes about risk (or shifts in personal disapproval) could "explain" the secular trend in actual use of marijuana. Our analyses strongly suggest that if there had not been a distinct increase in negative attitudes about marijuana, the steady decline in marijuana use would not have occurred (Bachman, Johnston, O'Malley, & Humphrey, 1986, under review).

What caused the change in attitudes about marijuana? Here I go beyond our data, but it appears to me that in recent years media reports about physical effects of marijuana use have been based on better research and presented in a more balanced fashion. Concurrently, reports about psychological consequences such as poor school performance, reduced interest in extracurricular activities, and impaired interpersonal relationships have now acquired the ring of truth; regular use of marijuana has been widespread for long enough so that most students have had first-hand contact with at least a few classmates who fit the popular description of "burnouts." Thus direct observation has in recent years become more consonant with messages from "the system."

In sum, we are fairly confident that increased perceptions of risk and increased disapproval have had an effect on marijuana use. Whether a similar scenario can be documented for other drugs remains to be seen. The most likely candidate in the next several years would seem to be cocaine. I will be surprised (as well as keenly disappointed) if our 1987 survey of seniors fails to document a rise in perceived risks of cocaine use. My hope is that such a shift in perceptions will be followed promptly by a decline in actual levels of use.

STABILITY IN INDIVIDUAL PATTERNS OF DRUG USE

Throughout the rest of this paper I want to concentrate on panel analyses, following high school seniors for a number of years after graduation and noting both changes and constancies in deviant behaviors, particularly the use of drugs.

The next broad theme can be stated very briefly, because it is really quite simple: Deviant behavior, and especially drug use, shows a great deal of stability among young adults. To put it another way, if I want to predict the use of marijuana among individuals several years after high school, by far my best predictor will be their marijuana use during high school. This general finding of consistency across time will come as no great surprise, but it may be of interest to note the levels of stability which we estimate. Table 1 presents examples of actual correlations across time, as well as the estimated "true" correlations--i.e., the correlations which would be obtained if there were no errors in our measurements (Table 1 is based on Bachman, O'Malley, & Johnston, 1984; see also Osgood et al., in press, for relationships estimated by LISREL).

Why is there such a high degree of stability for the various types of drug use? There are a variety of plausible explanations. In the case of cigarette use, we believe physical addiction plays a very strong role, even at these relatively young ages. The majority of smokers in our surveys would prefer not to smoke, and many have tried unsuccessfully to quit. In the case of most other drug use in the samples we have studied, we suspect that physical dependency is not usually the primary factor in sustaining the behavior; however, the actual physical effects experienced as a result of using the drug must certainly have some influence on an individual's desire to repeat the experience. For much of the drug use we have examined, it seems likely that the same factors which influenced use during high school continue to be influential during the post-high school years. And these, of course, include those factors which relate to deviance in general as well as those factors relating to specific forms (such as use of specific drugs). As we will see in a moment, there are several aspects of post-high school living conditions which seem to affect a number of different dimensions of drug use, and thus might be thought of as affecting deviance in general. But it is worth adding here that even among mobile young adults the really important transitions in living arrangements occur relatively infrequently. For example, in any two-year interval relatively few young adults make the transition from unmarried to married. Thus one of the factors contributing to the stability of drug use is the stability of primary factors in the social environment.

CHANGES LINKED TO MARITAL STATUS AND LIVING ARRANGEMENTS

Against this backdrop of considerable stability, we have nevertheless found some systematic changes in drug use linked to important post-high school experiences. In a publication several years ago we reported that during the first three years following high school the usage levels for alcohol, marijuana, and other illicit drugs (but not cigarettes) decreased among those who married, remained much the same (on average) among those who continued to live in their parents' homes, and increased among those others who left the parental homes but were not married. We also reported some increases in drug use linked to college attendance, which appeared to derive from the fact that college students are less likely to be married and more likely to have left their parents' homes (Bachman et al., 1984).

We are currently extending these panel analyses up to eight years beyond high school, and thus far the results have replicated our earlier findings fairly closely. Perhaps the most important and consistent of these findings is the decline in drug use associated with the transition into marriage. Figures 9 - 14 display percentages involved in several types of drug use across this eight-year interval, looking separately at those who married prior to the first follow-up, prior to the second, or third, or fourth, as well as those who remained unmarried at the time of the fourth follow-up. We have time to look at the figures only briefly, but it can readily be seen that in each of the intervals of transition into marriage (marked by heavy lines) there are sharp declines in the proportions of both males and females involved in heavy drinking and also in marijuana use. The data for cocaine show the pattern less clearly; actually, the pattern for this drug is better described as marriage seeming to prevent (and sometimes reverse) the increasing proportions of young adults becoming involved with cocaine. (Incidentally, these patterns which I have presented in the form of percentages of drug users are also clearly evident when we examine mean amounts of drug use, the measurement form we employ in most of our panel analyses.)

I should note three other patterns of findings which our preliminary analyses have uncovered, and which are closely related to the marriage findings. First, the relatively small numbers who were married and then divorced were excluded from Figures 9 - 14; however, when we look at them separately, it appears that during the interval when they make the transition out of marriage they also tend to increase their drug use. Second, when we examine those who indicate that they are engaged, we find that their drug use has declined somewhat--in effect, it appears that engagement involves some of the transitions into marriage which are associated with reduced drug use. Third, when we look separately at the transition from non-parent to parent (married),

we find an additional decline in drug use. (This appears to be largely independent of the marriage effects displayed in Figures 9-14, since most make the transition into parenthood somewhat later than the transition into marriage. In any case, regression analyses which distinguish the two effects indicate that both are important.)

ADDITIONAL AGE-LINKED CHANGES IN DEVIANT BEHAVIORS

We have already reviewed a number of changes in drug use which are linked to age. Of particular interest is the rise in cocaine use during the late teens and early twenties. As we have just seen, this age-linked shift seems to occur primarily before marriage; afterward there is no further increase, on average. Another sort of differential age-linked change which was not mentioned earlier involves monthly or annual amounts of alcohol consumption. There is a fairly steady increase with age between 18 and 21, an easily understandable shift given that during this period most passed the age threshold for legally purchasing alcohol. Interestingly, however, the changes in overall alcohol use, like the shifts in instances of heavy drinking, were linked to marriage.

In contrast to those age-linked changes which occur differently depending on marriage and other living arrangements, the rises in regular smoking during the first years after high school seem almost entirely unaffected by changes in those aspects of post-high school lifestyle. As noted earlier, once a young person gets involved in regular smoking the pattern seems quite difficult to break, and seems to continue largely independent of the transitions in lifestyle which we have been examining. This suggests that while the initiation into smoking behavior has a good deal in common with the initiation--and perhaps the repetition--of other deviant behaviors, the continuation of smoking may be better understood by treating it as behavior resulting from addiction.

One other age-linked change of considerable interest is the decline in delinquent behaviors which occurs during high school and continues during the years beyond high school. Willard Rodgers, Wayne Osgood, and I are about to begin an extensive examination of these data to see to what extent there are patterns similar to those which we have observed for most drugs. A preliminary analysis plotting measures of aggression and measures of theft and vandalism, using a format similar to that in Figures 9 - 14, was not very revealing. In general, delinquent behaviors dropped dramatically in all groups, and we were not able to discern clear differential impacts of marriage. I must stress that these analyses are very preliminary, and more thorough explorations may uncover some effects of marriage and other living arrangements. But it already seems likely that any such factors will not account for most of the change, since even among those who do not marry the rates of delinquency decline quite sharply with age.

CONCLUDING COMMENTS

I will not try to summarize what has already been a summary of findings. Instead, I want to focus on the implications of these findings for the main themes of this symposium. Certainly one important implication is that there is considerable evidence of continuity over time and across behavioral domains in terms of the general factors which seem to predispose to deviant behaviors; the kinds of individuals likely to get involved with a whole range of troublesome behaviors are much the same in 1986 as they were in 1975. But the particular types of troublesome behavior have shifted somewhat during the past decade, and the shifts have not all been the same; thus, they cannot be explained simply in terms of changes in general predisposing factors. Instead, it appears that we must look to more specific factors to account for the rise and fall in popularity of particular forms of deviance.

That last conclusion may have practical implications for drug prevention efforts; it suggests that we do not necessarily have to "cure" or "prevent" general trouble-proneness in order to deal with particular drugs. We seem to be in the midst of a particularly exciting period of social change in which the effects of various forms of risky behavior are examined, widely reported, and incorporated into the perceptions of young people, all within the space of a few years. We think that accounts for much of the recent trends in marijuana use, and we are watching closely to see if a similar pattern emerges for cocaine use. (And, although it lies outside the scope of our own project, we hope that others can monitor changes in sexual attitudes and practices in reaction to the growing awareness of the risks of AIDS.) Based on experiences in prior years, it seems unlikely that scare tactics will work, particularly when contradicted by personal experiences. But my colleagues and I believe that realistic information about the risks of a given type of deviant behavior, communicated by a credible source, can be persuasive and can play an important role in what must ultimately be the most effective means of reducing drug use--reducing demand.

The implications of these findings for theory would seem to be that any comprehensive effort to explain the totality of deviance in adolescence and young adulthood will have to take into account both the general factors and those which are specific to particular deviant behaviors. Moreover, there will need to be a recognition that some forms of deviance may remain largely dependent upon early experiences and current social factors, while others are more addictive and thus are much more resistant to change. Taking account of all these factors is a tall order indeed. In the meantime, we do well to keep in mind that our theorizing is usually about only a portion of a complex and ever-changing domain of behaviors.

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Table 1

Autocorrelations (Base Year With Follow-Up) for Drug Use Measures

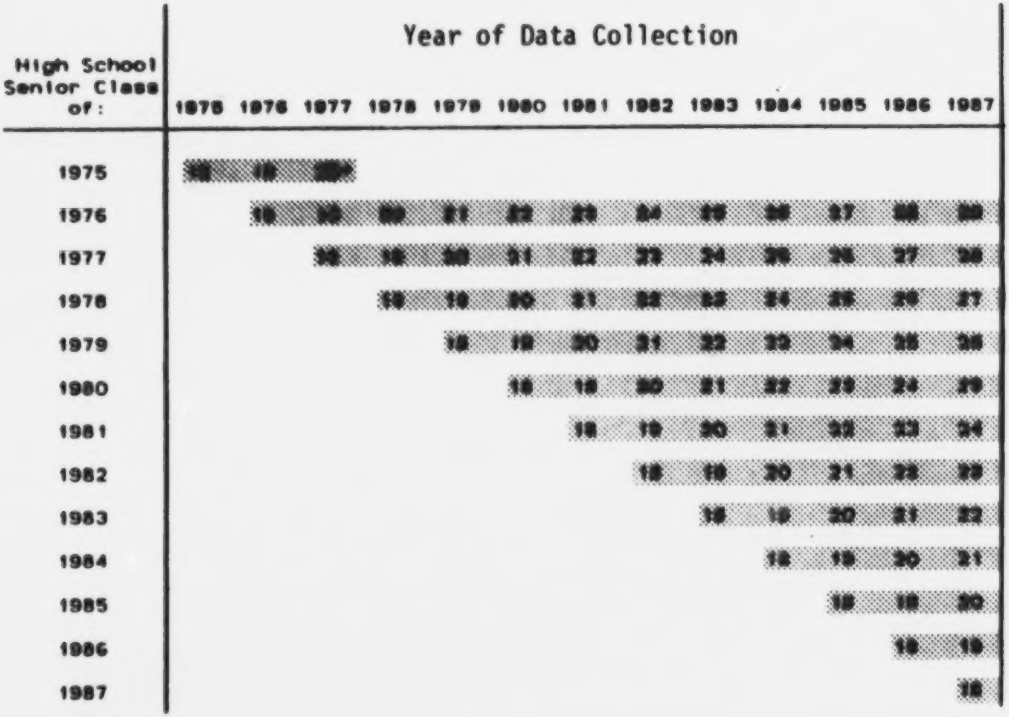
Drug use measure	Estimated reliability	Correlations with base year: 1-year follow-up	2-year follow-up	3-year follow-up
Cigarette use in past month	.89			
Autocorrelations		.788	.732	.703
Stability estimates		.89	.82	.79
Heavy drinking in past 2 weeks	.64			
Autocorrelations		.514	.462	.418
Stability estimates		.80	.72	.65
Alcohol use in past year	.87			
Autocorrelations		.704	.650	.584
Stability estimates		.81	.75	.67
Marijuana use in past year	.90			
Autocorrelations		.763	.656	.590
Stability estimates		.85	.73	.66
Other illicit drug use in past year	.73			
Autocorrelations		.596	.479	.421
Stability estimates		.82	.66	.58

Note. Autocorrelations = correlations between drug use during high school and use of the same category of drug during the first several years after high school. Stability estimates = autocorrelations adjusted for reliability.

Adapted from Bachman, J.G., O'Malley, P.M., and Johnston, L.D. (1984). Drug use among young adults: The impacts of role status and social environment. *Journal of Personality and Social Psychology*, 47:3, 629-645.

Figure 1. OVERVIEW OF THE COHORT-SEQUENTIAL DESIGN

NOTE: Cell entries indicate average age at time of data collection.



*Because of excessive losses in initial follow-up efforts, the class of 1975 is no longer included in follow-up surveys.

Figure 2

Trends in Thirty-Day Marijuana Prevalence
For a Single Cohort
Class of 1976 Followed Through 1986

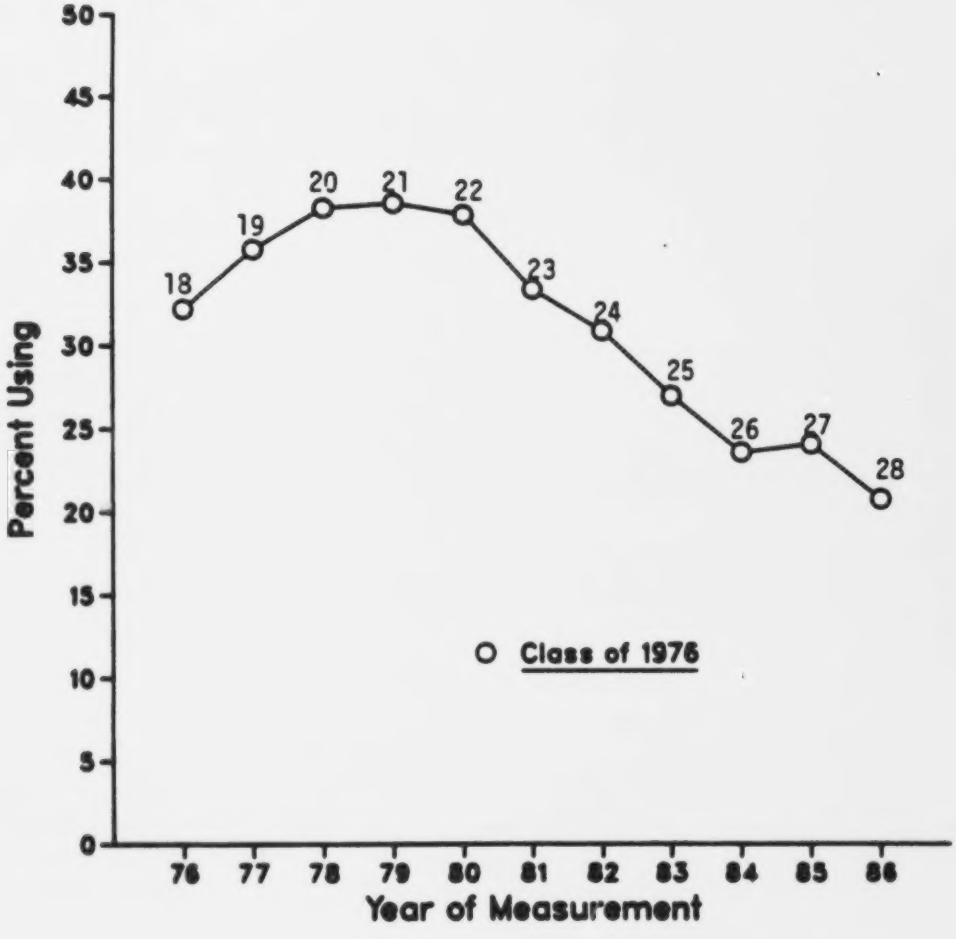


Figure 3

Trends in Thirty-Day Marijuana Prevalence
For Multiple Cohorts
1976-1986

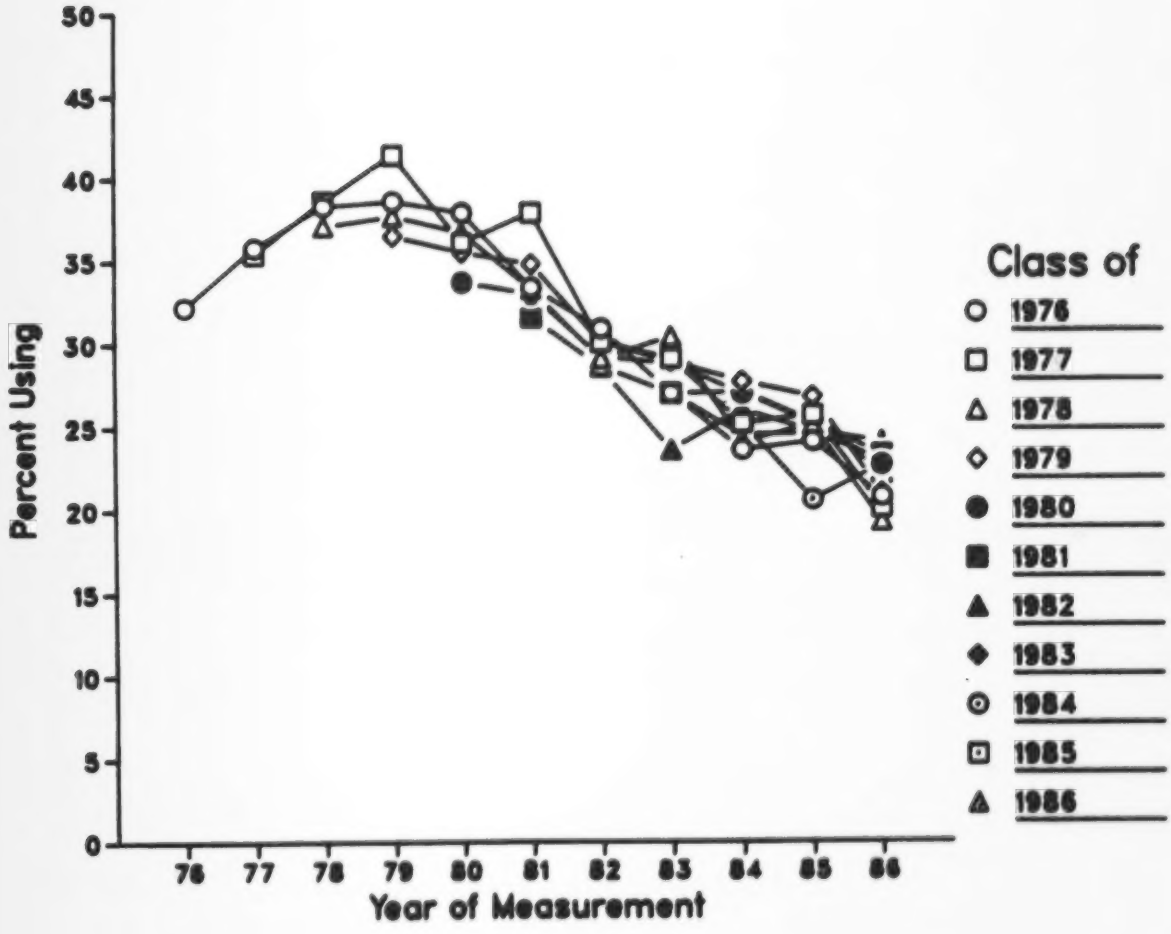


Figure 4

Trends in Annual Cocaine Prevalence
For a Single Cohort
Class of 1976 Followed Through 1986

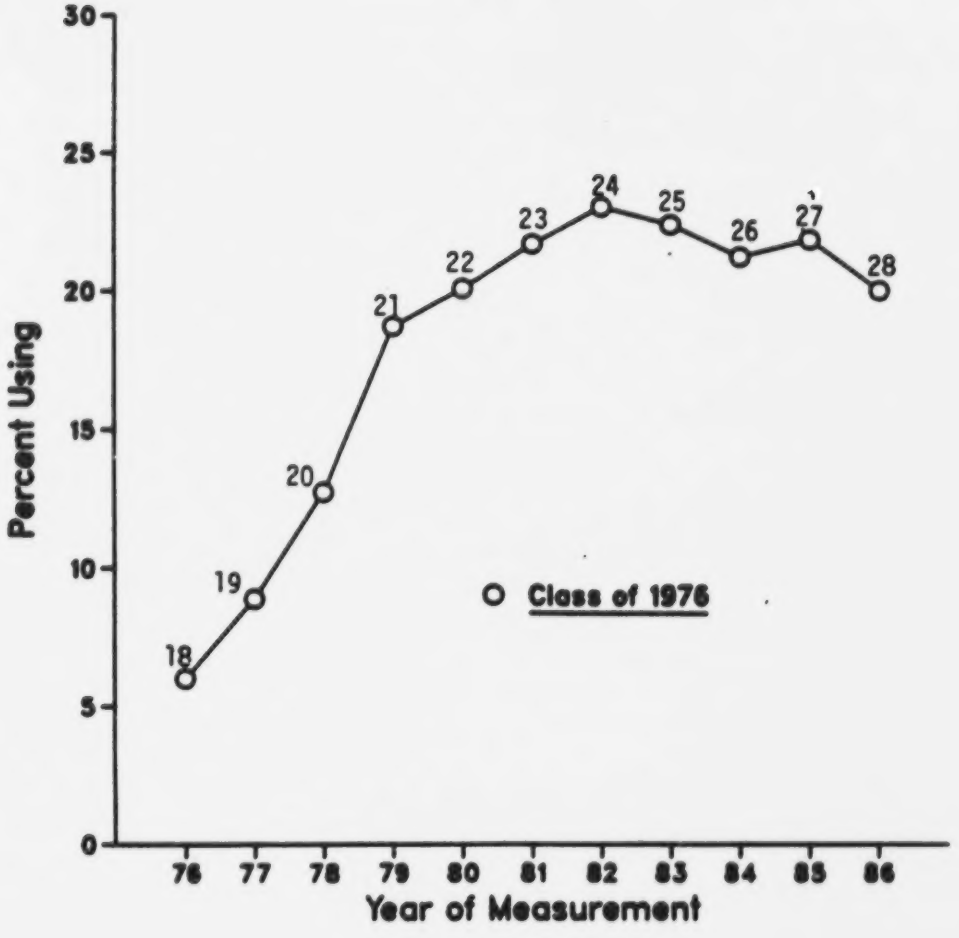


Figure 5

Trends in Annual Cocaine Prevalence
For Multiple Cohorts
1976-1986

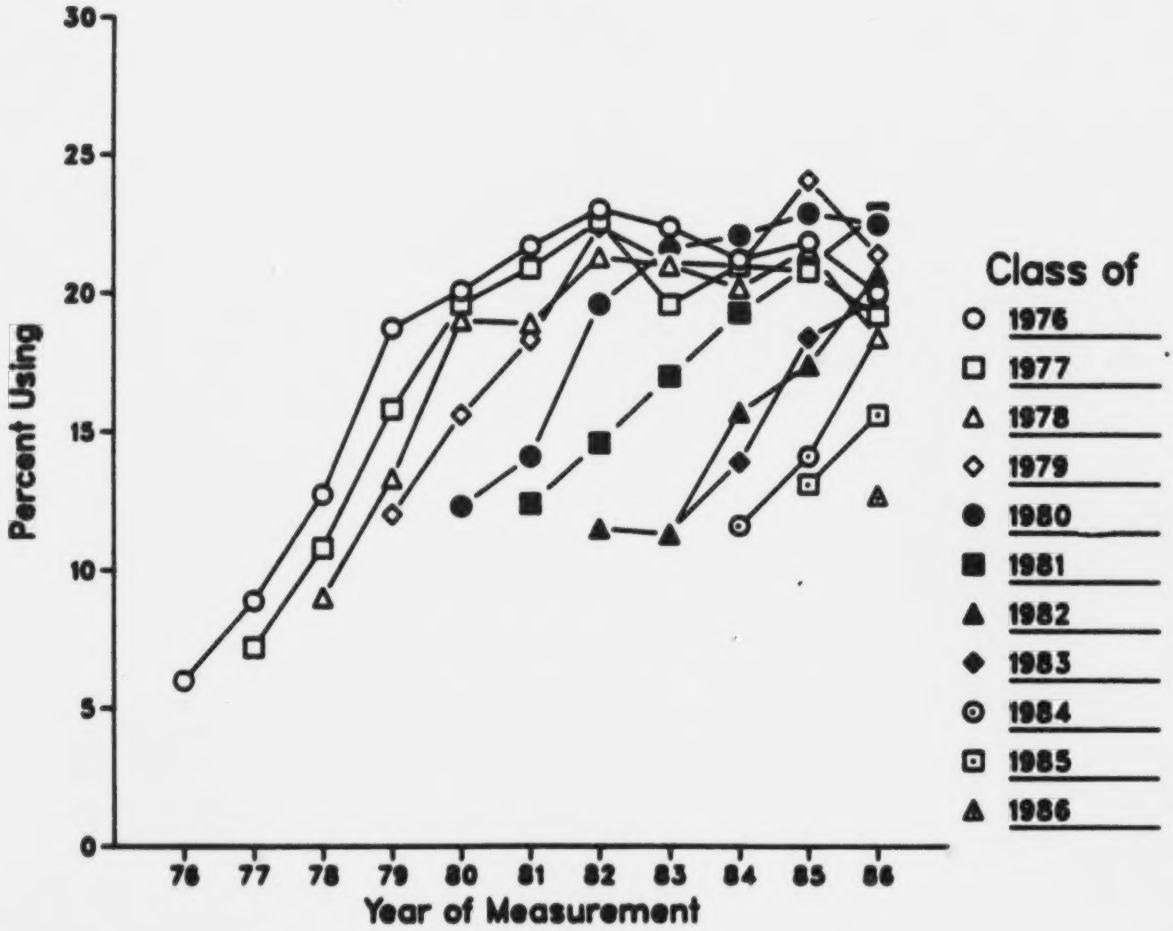


Figure 6

Trends in Thirty-Day Prevalence of Smoking One-Half or More Packs of Cigarettes Per Day For a Single Cohort Class of 1976 Followed Through 1986

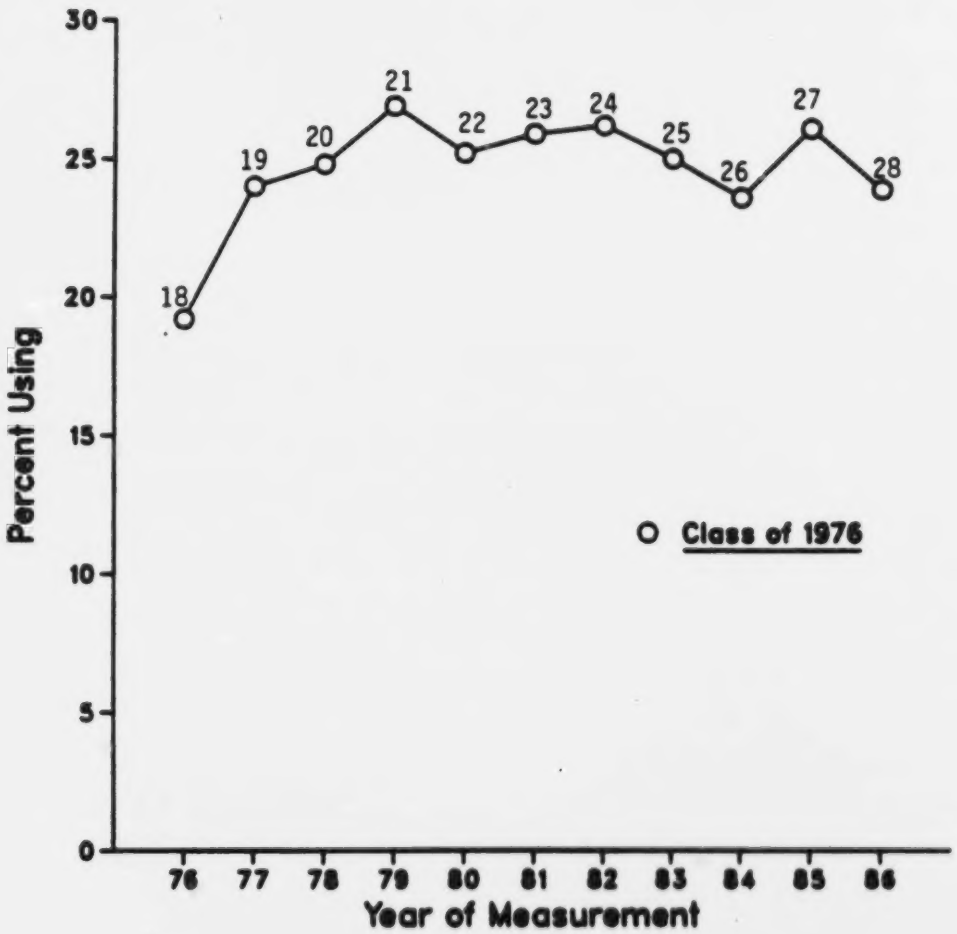


Figure 7

Trends in Thirty-Day Prevalence of Smoking One-Half or More Packs of Cigarettes Per Day For Multiple Cohorts 1976-1986

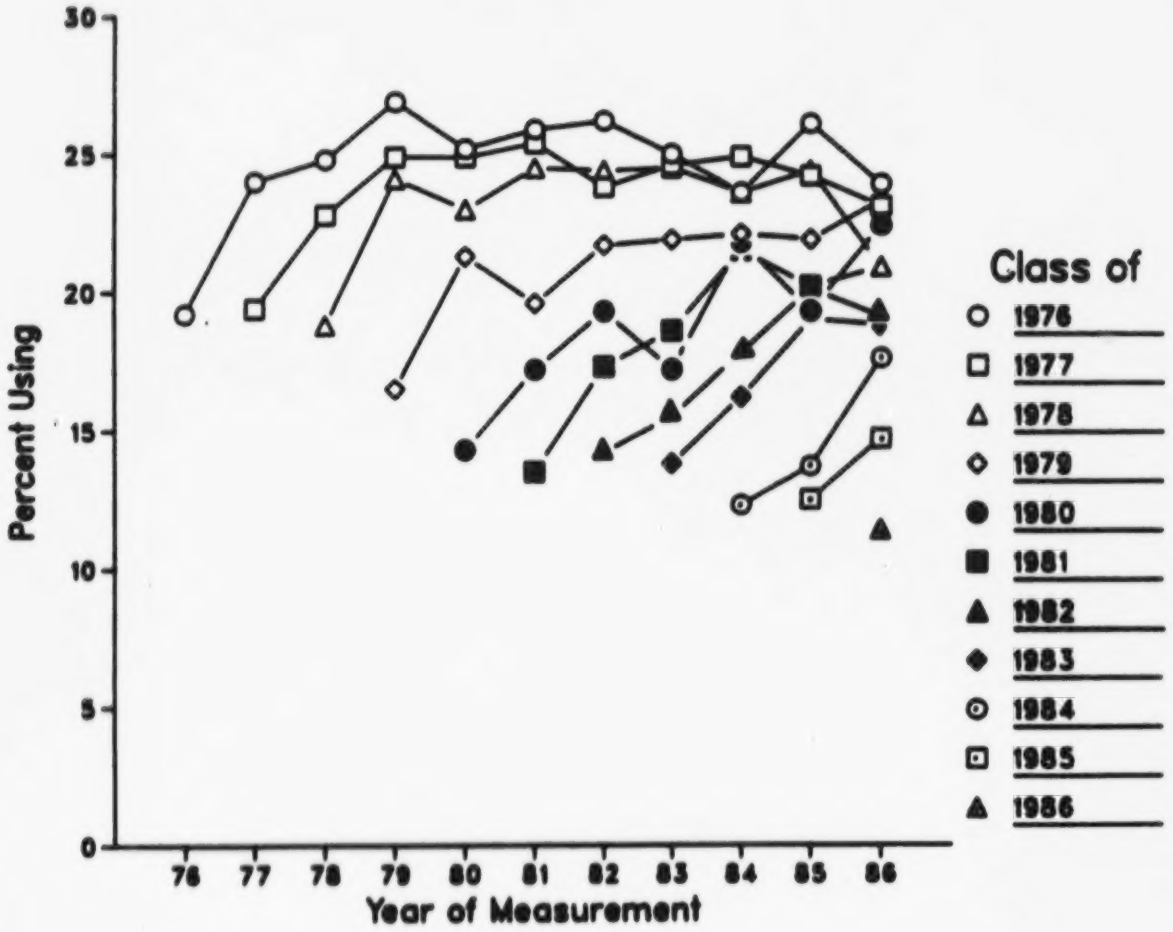


FIGURE 8

Trends in Marijuana Use and Perceived Risk

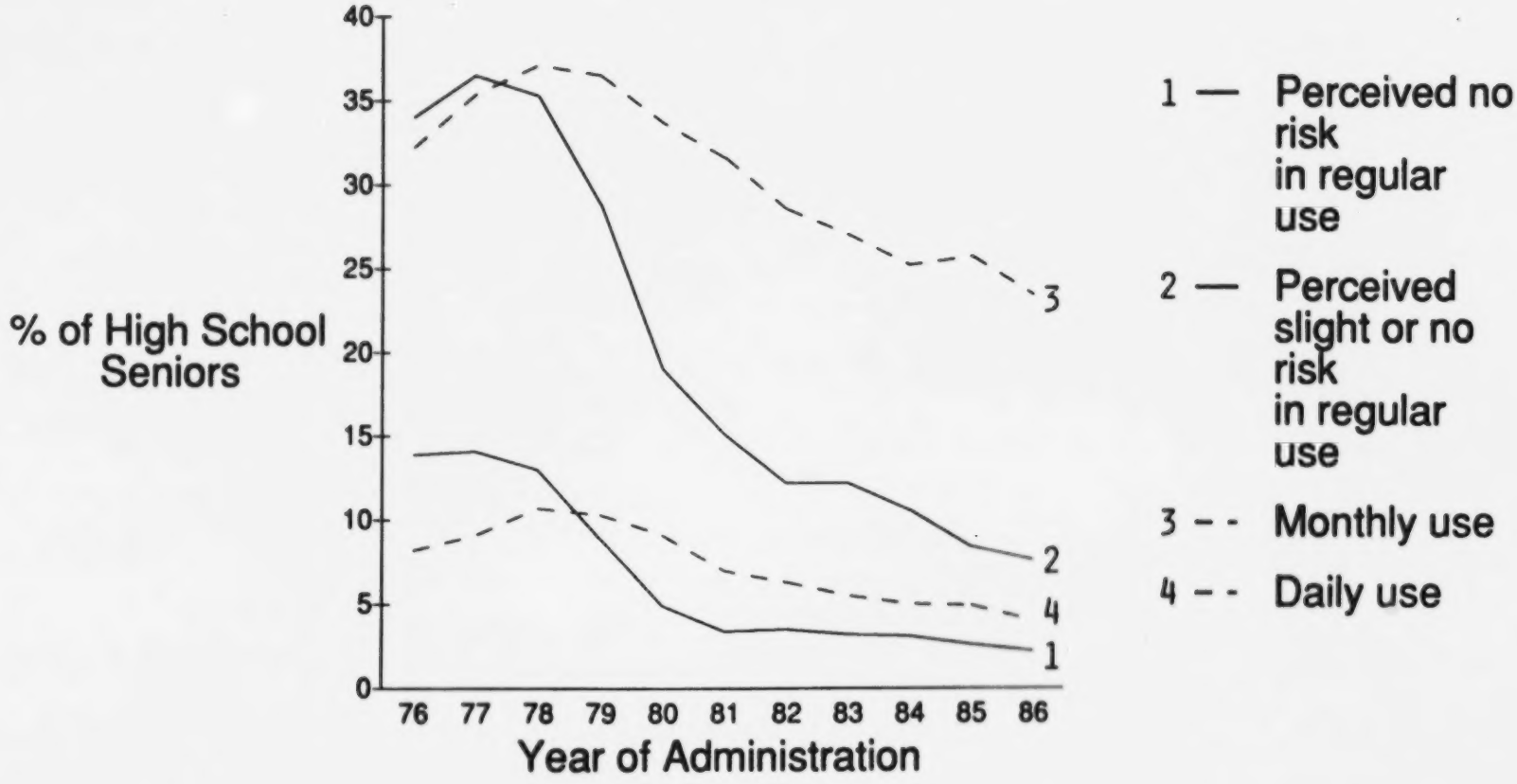


FIGURE 9

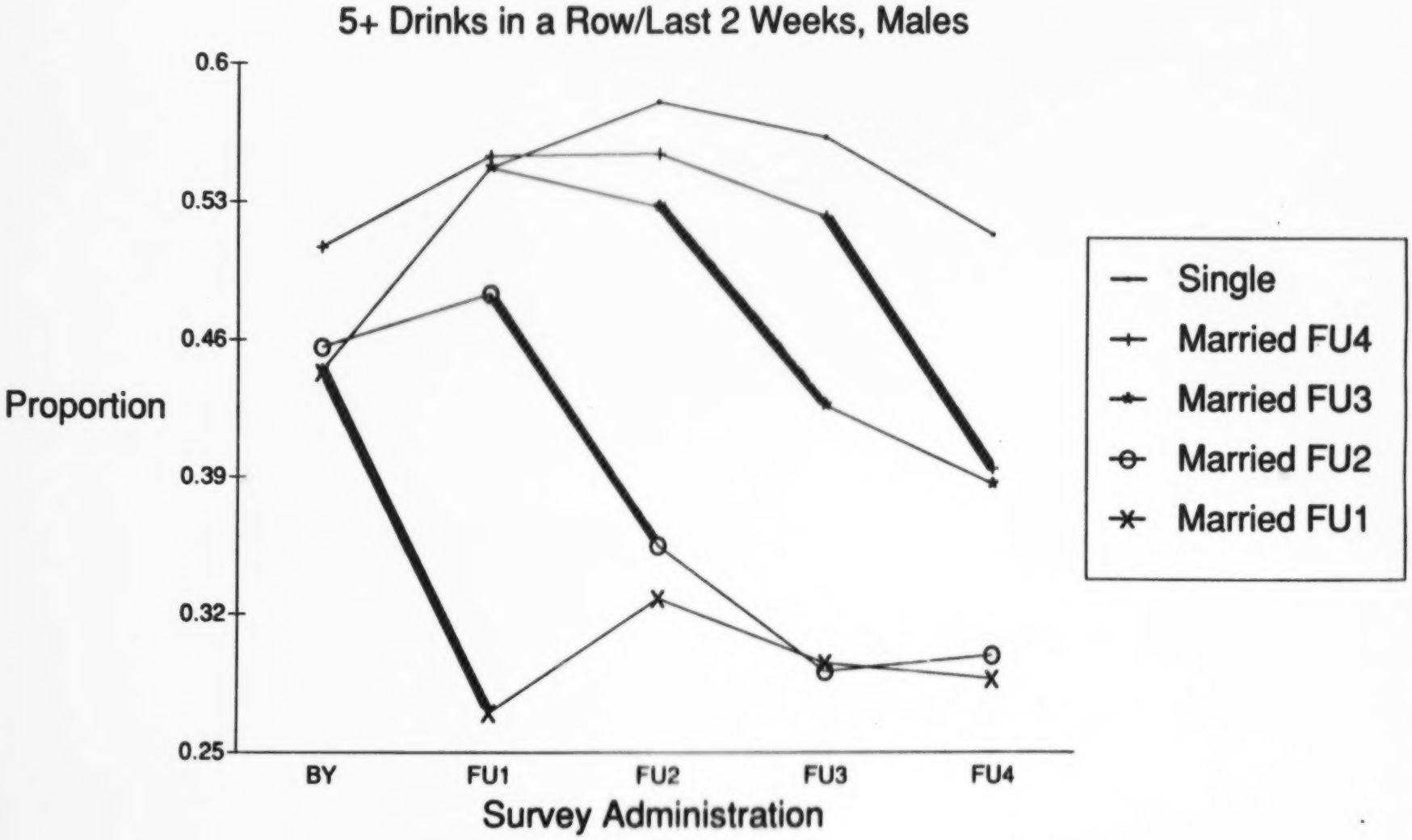

5+ Drinks in a Row/Last 2 Weeks, Males
0.6
0.53
0.46
0.39
0.32
0.25
Proportion
BY
FU1
FU2
FU3
FU4
Survey Administration
Single
Married FU4
Married FU3
Married FU2
Married FU1

FIGURE 10

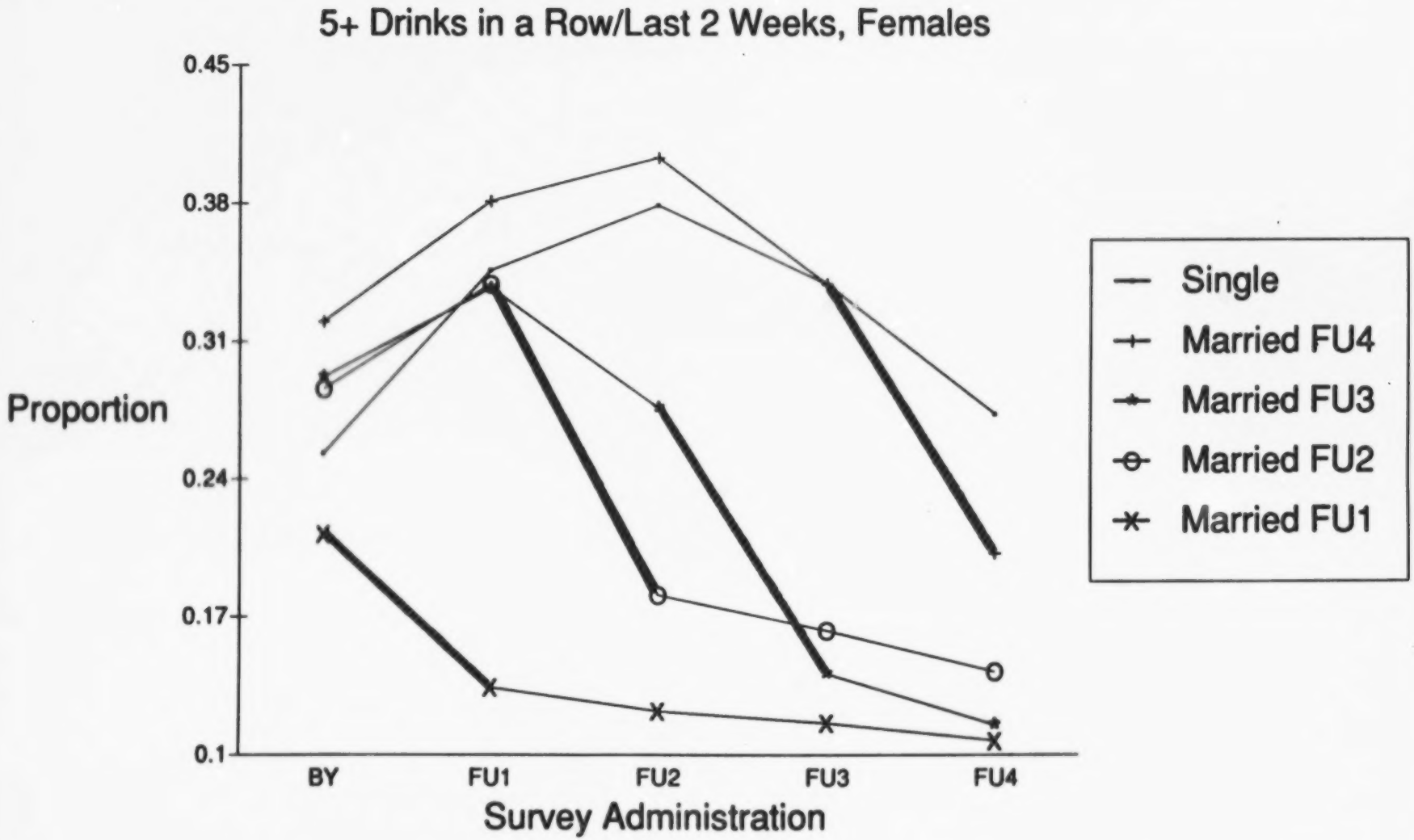

5+ Drinks in a Row/Last 2 Weeks, Females
0.45
0.38
0.31
0.24
0.17
0.1
Proportion
BY
FU1
FU2
FU3
FU4
Survey Administration
Single
Married FU4
Married FU3
Married FU2
Married FU1

FIGURE 11

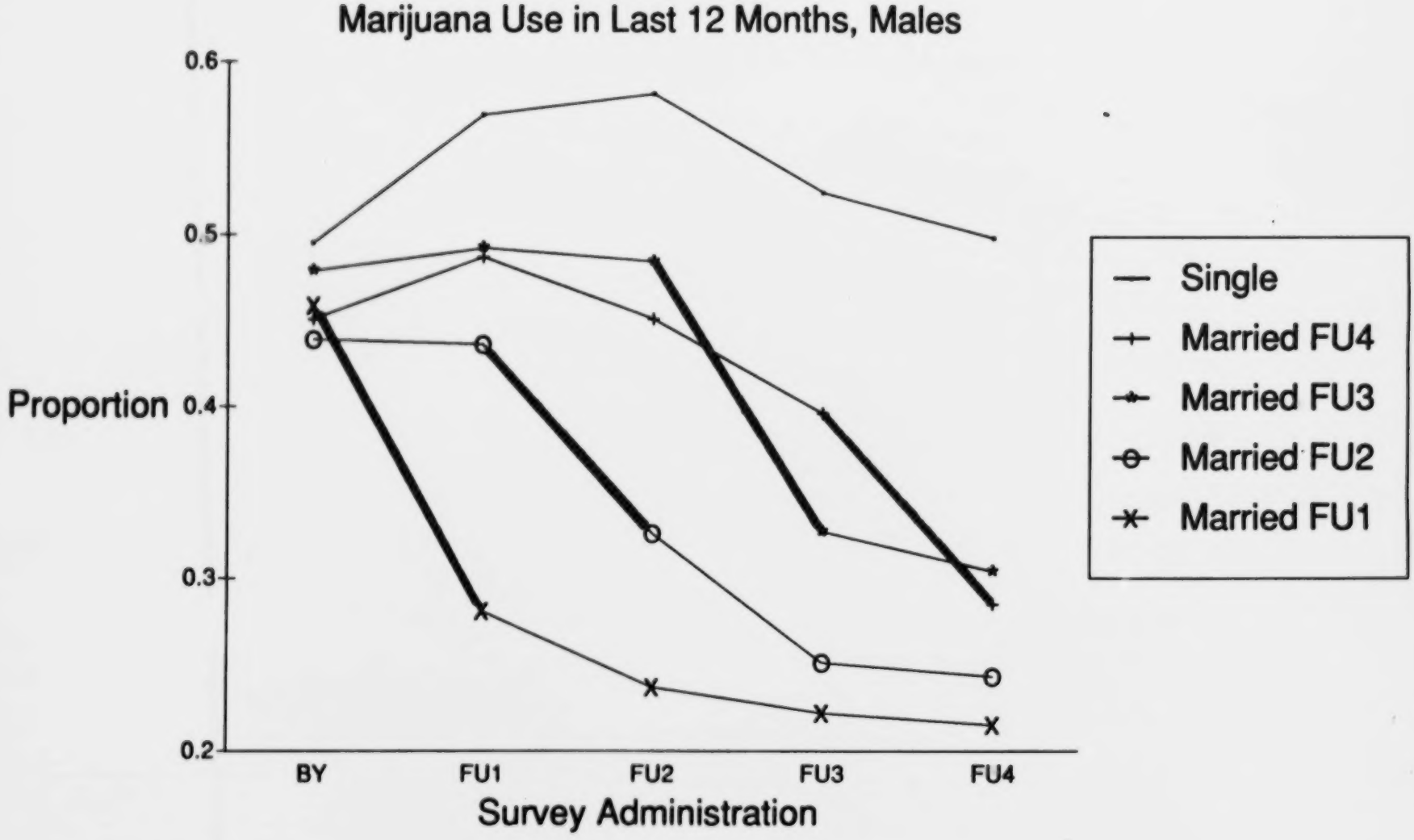

Marijuana Use in Last 12 Months, Males
Proportion
0.6
0.5
0.4
0.3
0.2
BY
FU1
FU2
FU3
FU4
Survey Administration
Single
Married FU4
Married FU3
Married FU2
Married FU1

FIGURE 12

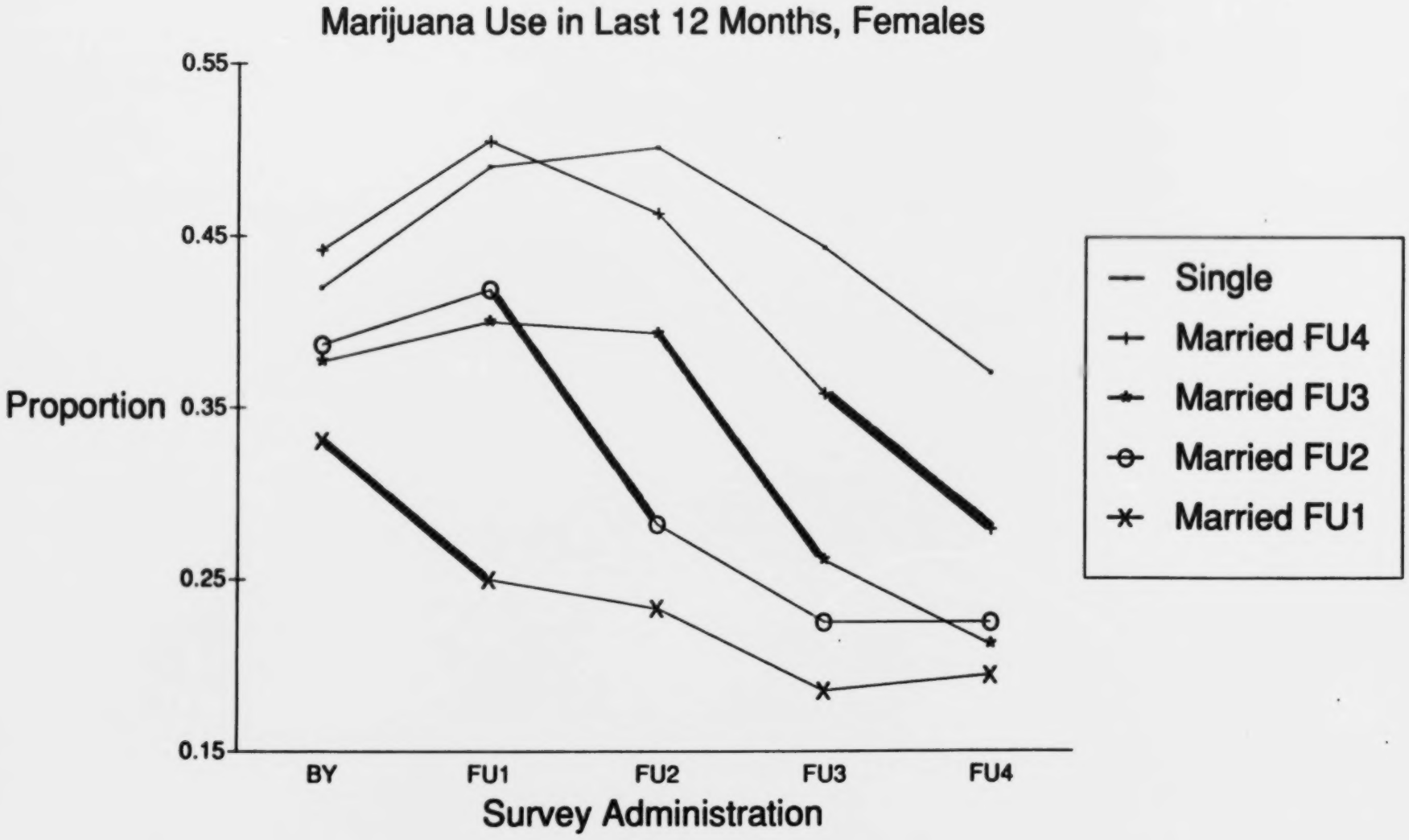

Marijuana Use in Last 12 Months, Females
Proportion
0.55
0.45
0.35
0.25
0.15
BY
FU1
FU2
FU3
FU4
Survey Administration
Single
Married FU4
Married FU3
Married FU2
Married FU1

FIGURE 13

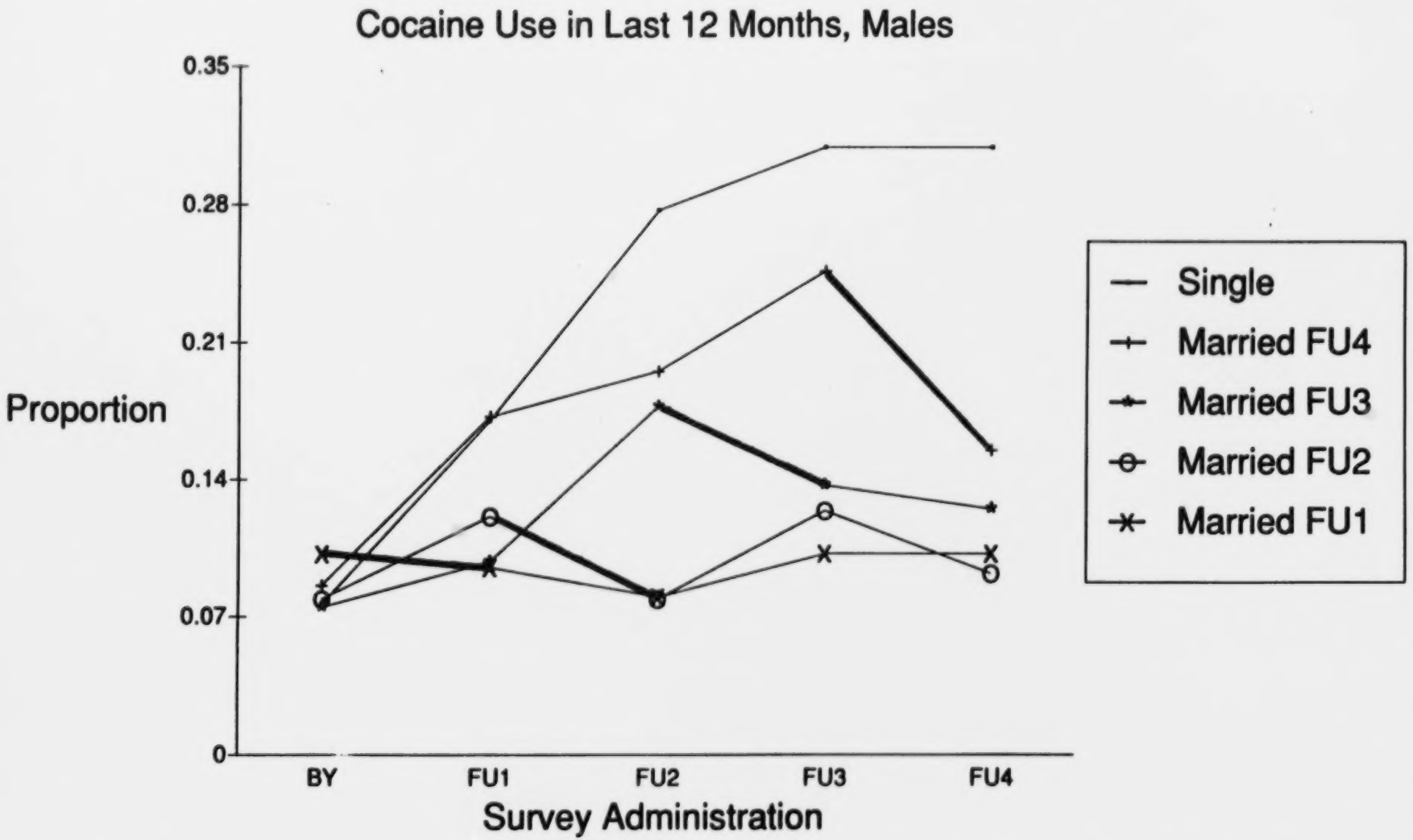
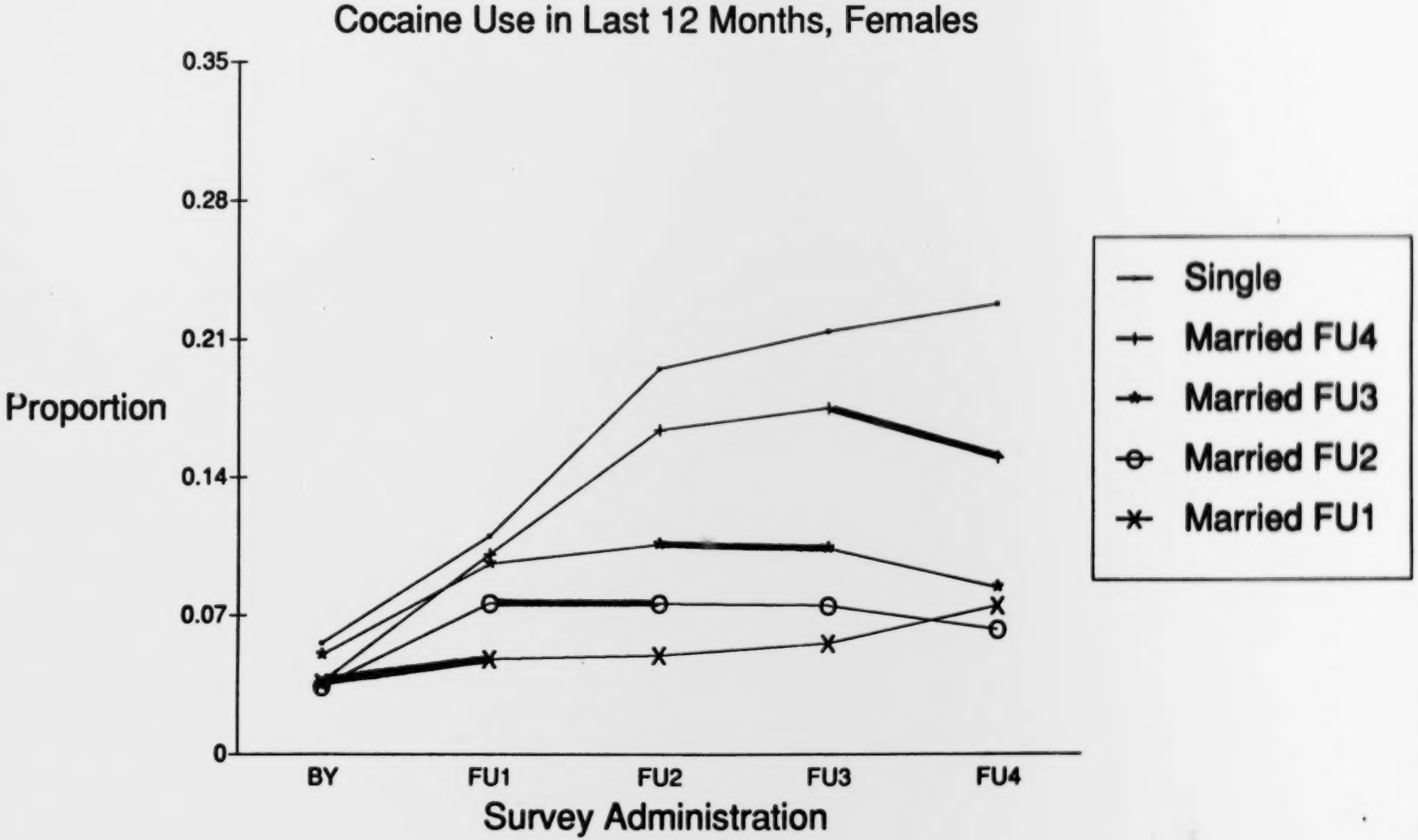

Cocaine Use in Last 12 Months, Males
0.35
0.28
0.21
0.14
0.07
0
Proportion
BY
FU1
FU2
FU3
FU4
Survey Administration
Single
Married FU4
Married FU3
Married FU2
Married FU1

FIGURE 14


Cocaine Use in Last 12 Months, Females
0.35
0.28
0.21
0.14
0.07
0
Proportion
BY
FU1
FU2
FU3
FU4
Survey Administration
Single
Married FU4
Married FU3
Married FU2
Married FU1